

CLAIMS

1. An oxide high-temperature superconducting wire comprising:
an oxide superconductor (1);
5 a sheath (2) formed of a material containing silver, and covering said
oxide superconductor (1);
a high-resistance element (3) formed of a strontium-vanadium oxide
and coating said sheath (2); and
a coating (4) formed of a material containing silver, and coating said
10 high-resistance element (3).

2. The oxide high-temperature superconducting wire of claim 1,
comprising a plurality of said sheaths (2) with said high-resistance element
15 (3) interposed therebetween.

3. The oxide high-temperature superconducting wire of claim 1,
wherein said oxide superconductor (1) is provided in a form of a filament.

4. The oxide high-temperature superconducting wire of claim 1,
20 wherein said strontium-vanadium oxide includes at least one selected from
the group consisting of $\text{Sr}_6\text{V}_2\text{O}_{11}$ and SrV_2O_6 .

5. The oxide high-temperature superconducting wire of claim 1,
wherein said sheath (2) and said coating (4) are formed of silver or silver
25 alloy.

6. The oxide high-temperature superconducting wire of claim 1,
wherein said oxide superconductor (1) is a Bi(Pb)-Sr-Ca-Cu-O-based
superconductor.
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7. An oxide high-temperature superconducting wire comprising:
an oxide superconductor (1);
a high-resistance element (3) formed of ceramic and coating said

oxide superconductor (1); and

a coating (4) formed of a material containing silver, and coating said high-resistance element (3).

5 8. The oxide high-temperature superconducting wire of claim 7, wherein said ceramic is formed of a strontium-vanadium oxide.

10 9. The oxide high-temperature superconducting wire of claim 7, comprising a plurality of said sheaths (2) with said high-resistance element (3) interposed therebetween.

 10. The oxide high-temperature superconducting wire of claim 7, wherein said oxide superconductor (1) is provided in a form of a filament.

15 11. The oxide high-temperature superconducting wire of claim 8, wherein said strontium-vanadium oxide includes at least one selected from the group consisting of $\text{Sr}_6\text{V}_2\text{O}_{11}$ and SrV_2O_6 .

20 12. The oxide high-temperature superconducting wire of claim 7, wherein said sheath (2) and said coating (4) are formed of silver or silver alloy.

25 13. The oxide high-temperature superconducting wire of claim 7, wherein said oxide superconductor (1) is a Bi(Pb)-Sr-Ca-Cu-O-based superconductor.

 14. An oxide high-temperature superconducting wire comprising:
an oxide superconductor (1);
a first high-resistance element (31) formed of ceramic and coating
30 said oxide superconductor (1);
a sheath (2) formed of a material containing silver, and covering said first high-resistance element (31);
a second high-resistance element (32) formed of ceramic and coating

said sheath (2); and

a coating (4) formed of a material containing silver, and coating said second high-resistance element (32).

5 15. The oxide high-temperature superconducting wire of claim 14, wherein said ceramic is formed of a strontium-vanadium oxide.

10 16. The oxide high-temperature superconducting wire of claim 14, comprising a plurality of said sheaths (2) with said second high-resistance element (32) interposed therebetween.

 17. The oxide high-temperature superconducting wire of claim 14, wherein said oxide superconductor (1) is provided in a form of a filament.

15 18. The oxide high-temperature superconducting wire of claim 15, wherein said strontium-vanadium oxide includes at least one selected from the group consisting of $\text{Sr}_6\text{V}_2\text{O}_{11}$ and SrV_2O_6 .

20 19. The oxide high-temperature superconducting wire of claim 14, wherein said sheath (2) and said coating (4) are formed of silver or silver alloy.

25 20. The oxide high-temperature superconducting wire of claim 14, wherein said oxide superconductor (1) is a Bi(Pb)-Sr-Ca-Cu-O-based superconductor.

 21. A method of producing an oxide high-temperature superconducting wire, comprising the steps of:

30 packing, in a first pipe formed of a material containing silver, source powder providing an oxide superconductor (1) when said source powder is thermally treated or powder of said oxide superconductor (1);

 arranging in a second pipe formed of a material containing silver said first pipe having said source powder or said powder of said oxide

superconductor (1) packed therein;

packing a powdery strontium-vanadium oxide between an outer circumferential surface of said first pipe and an inner circumferential surface of said second pipe; and

5 subjecting to a plastic working and a thermal treatment said second pipe having said powdery strontium-vanadium oxide packed therein.

22. The method of claim 21, wherein said powdery strontium-vanadium oxide has a grain size of 1 μm to 10 μm .

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23. The method of claim 21, wherein the step of subjecting includes twisting said second pipe before compressing and thermally treating said second pipe.

15 24. A method of producing an oxide high-temperature superconducting wire, comprising the steps of:

packing, in a first pipe formed of a material containing silver, source powder providing an oxide superconductor (1) when said source powder is thermally treated or powder of said oxide superconductor (1);

20 preparing from a powdery strontium-vanadium oxide a green compact having a hole;

inserting into said hole of said green compact said first pipe having said source powder or said powder of said oxide superconductor (1) packed therein;

25 arranging in a second pipe formed of a material containing silver said green compact having said first pipe inserted therein; and

subjecting to a plastic working and a thermal treatment said second pipe having said green compact packed therein.

30 25. The method of claim 24, wherein said powdery strontium-vanadium oxide has a grain size of 1 μm to 10 μm .

26. The method of claim 24, wherein the step of subjecting includes

twisting said second pipe before compressing and thermally treating said second pipe.

5 27. A method of producing an oxide high-temperature
superconducting wire, comprising the steps of:
 packing, in a first pipe formed of a material containing silver, source
powder providing an oxide superconductor (1) when said source powder is
thermally treated or powder of said oxide superconductor (1);
 applying on an outer circumferential surface of said first pipe having
10 said source powder or said powder of said oxide superconductor (1) packed
therein a slurry prepared from a powdery strontium-vanadium oxide;
 arranging in a second pipe formed of a material containing silver
said first pipe having said slurry applied thereon; and
 subjecting to a plastic working and a thermal treatment said second
15 pipe having said first pipe arranged therein.

 28. The method of claim 27, wherein said powdery strontium-
vanadium oxide has a grain size of 1 μm to 10 μm .

20 29. The method of claim 27, wherein the step of subjecting includes
twisting said second pipe before compressing and thermally treating said
second pipe.

25 30. A method of producing an oxide high-temperature
superconducting wire, comprising the steps of:
 preparing a green compact in a form of a bar from source powder
providing an oxide superconductor (1) when said source powder is thermally
treated or from powder of said oxide superconductor (1);
 applying on a surface of said green compact a slurry prepared from a
30 powdery strontium-vanadium oxide;
 inserting into a first pipe formed of a material containing silver said
green compact having said slurry applied thereon;
 arranging in a second pipe formed of a material containing silver

said first pipe having said green compact inserted therein; and
subjecting to a plastic working and a thermal treatment said second
pipe having said first pipe arranged therein.

5 31. The method of claim 30, wherein said powdery strontium-
vanadium oxide has a grain size of 1 μm to 10 μm .

 32. The method of claim 30, wherein the step of subjecting includes
twisting said second pipe before compressing and thermally treating said
10 second pipe.

 33. A method of producing an oxide high-temperature
superconducting wire, comprising the steps of:
 preparing a green compact in a form of a bar from source powder
15 providing an oxide superconductor (1) when said source powder is thermally
treated or from powder of said oxide superconductor (1);
 applying on a surface of said green compact a slurry prepared from a
powdery strontium-vanadium oxide;
 inserting into a first pipe formed of a material containing silver said
20 green compact having said slurry applied thereon;
 applying on outer circumferential surface of said first pipe having
said green compact inserted therein a slurry prepared from a powdery
strontium-vanadium oxide;
 arranging in a second pipe formed of a material containing silver
25 said first pipe having said slurry applied thereon; and
 subjecting to a plastic working and a thermal treatment said second
pipe having said first pipe arranged therein.

 34. The method of claim 33, wherein said powdery strontium-
30 vanadium oxide has a grain size of 1 μm to 10 μm .

 35. The method of claim 33, wherein the step of subjecting includes
twisting said second pipe before compressing and thermally treating said

second pipe.

36. A method of producing an oxide high-temperature superconducting wire, comprising the steps of:

5 applying on an inner circumferential surface of a first pipe formed of a material containing silver a slurry prepared from a powdery strontium-vanadium oxide;

10 packing, in said first pipe having said slurry applied thereon, source powder providing an oxide superconductor (1) when said source powder is thermally treated or powder of said oxide superconductor (1);

 applying on an outer circumferential surface of said first pipe having said source powder or said powder of said oxide superconductor (1) packed therein a slurry prepared from a powdery strontium-vanadium oxide;

15 arranging in a second pipe formed of a material containing silver said first pipe having said slurry applied thereon; and

 subjecting to a plastic working and a thermal treatment said second pipe having said first pipe arranged therein.

20 37. The method of claim 36, wherein said powdery strontium-vanadium oxide has a grain size of 1 μm to 10 μm .

 38. The method of claim 36, wherein the step of subjecting includes twisting said second pipe before compressing and thermally treating said second pipe.